

Serial No.: 10/728,258 Amendment to SPECIFICATION
Art Unit: 3739

On page 1, line 1 please amend the title as follows:

Esophageal Lesion Treatment Method ~~Arrangement~~

On page 5, please amend the first paragraph thereon as follows:

A flexible endoscope with a working channel would be utilized to introduce a balloon and a laser delivery optical fiber to be inserted within the patient's esophagus. The endoscope would be pressed against the distal end of the balloon. The scope would be utilized to permit visualization and guidance of the balloon. Once within the desired location of the esophagus, the balloon would be inflated with a fluid such as saline, water or a gas or the like, and the scope would be retracted to a position within the inflated balloon. The visualization scope and a laser fiber may be steered to the appropriate spot, and lasing would be permitted through the balloon wall. Air and or other fluid may be purged from the balloon by pumping in a saline fluid through the fiber-working channel and removing the air through an annulus around the scope sheath ~~annulus~~.

Serial No.: 10/728,258 Amendment to SPECIFICATION
Art Unit: 3739

On page 9, please amend the first full paragraph thereon as follows:

Treatment energies of between about 0.5 and 1.0 Joules per pulse are typical because the area of exposure is small and the divergence is also small. A fluence of around 30 + or - ~~thirty~~ 30 J per square centimeter is considered to be ideal. Lasing ahead and to the side of a balloon an angle of about 45 degrees is one preferred method, because it permits visualization in a proper manner. The outside diameter of the tip of the optical fiber must be smaller than the working channel of the scope, which is between 1 and 5 mm. The divergence of the beam of laser light should be optimized to match the surgical environment, ease of use and desired spot size. The choice of fluid in the balloon will permit control of divergence due to refractive index differences between the fiber and the fluid. For example, water may be utilized to decrease the divergence of the beam due to index matching.

Serial No.: 10/728,258 Amendment to SPECIFICATION
Art Unit: 3739

On page 19, please amend the Specification, the first four lines of the bottom paragraph as follows:

“In a further embodiment as shown in figures 2A and 2B, a flexible, directable endoscope 36 may be utilized through its working channel to permit a balloon 38 and a tip of an endoscope 40 to be inserted within the patient’s esophagus, wherein the ~~scope~~ endoscope 40 would be pressable directly”.

Serial No.: 10/728,258 Amendment to SPECIFICATION
Art Unit: 3739

On page 20, please amend the Specification thereon beginning with line 1 thereon, through the rest of that paragraph as follows:

“against the distal end of the balloon 38, as represented in phantom lines in figure 2A and 2B, and also in as endoscope 18, as represented in figure 1A. The endoscope 18 or 40, would be utilized to permit visualization and guidance of the balloon 20/38, as represented for example, in figures 1A and 2A. The balloon 20 is required to be deflated to pass through the narrow anatomy of the nasal passages. The collapsed balloon 20 or 38, would be furled, folded or stretched over the sheath 19, and should not be larger than about 5 x 7 mm in cross section with smaller sizes preferred. Once within the desired location of the esophagus, the balloon 20/38 would be inflated with a fluid such as saline, water or a gas or the like, as represented in figure 1 ~~[[A]]~~ B, and the endoscope 36 would be retracted in the sheath 19 to a more “proximal” position within the inflated balloon, as represented in the figure 2B. The visualization port 44 and a laser fiber 46 may each be individually steered or collectively steered by the endoscope 36 to the appropriate spot, and laser light would be permitted through the wall of the balloon 38, as represented in figure 3.”

Serial No.: 10/728,258 Amendment to SPECIFICATION
Art Unit: 3739

On page 22, of the specification, please amend the last 9 lines of the last paragraph thereon, as follows:

-- Utilizing a bare tip optical fiber 70, as represented in figure 7, the entire circumference of the esophageal sphincter "ES", shaped as a forward hemisphere may be exposed to the laser for treatment thereof, as well as its sidewalls through a steering endoscope 72 and fiber 70 at an angle which deviates from the longitudinal axis "X" of the endoscope 72 and its sheath 19. An arrangement of optical fibers 54 for lasing may be utilized also in a side firing configuration, as represented in figures 5A, and 6, ~~as side firing optical fiber 76 and 9,~~ to permit better access to the lesions "L" in the wall "W" of the esophagus "E". The sheath 19 may have further lumens or--.

Serial No.: 10/728,258 Amendment to SPECIFICATION
Art Unit: 3739

On page 24, please amend the bottom paragraph thereon as follows:

Treatment energies of between about 0.5 and 1.0 Joules per pulse, up to 8 Joules, ~~(8.0 Joules is available from the laser)~~ because the area of exposure is small and the divergence is also small. A fluence of around 30 + or – ~~twenty~~ 20 J per square centimeter is considered to be ideal. Lasing ahead and to the side of a balloon an angle of about 45 degrees is one preferred method, because it ~~permits~~ facilitates visualization ~~in a more proper manner~~. The outside diameter of the tip of the optical fiber cannot be larger than the working channel of the scope, which is about 2.2 mm. In one preferred embodiment, the divergence of the beam of laser light should be optimized to speed up the procedure of exposing the lesion and exploit the selective nature of the pulsed dye laser.

Serial No.: 10/728,258 Amendment to SPECIFICATION
Art Unit: 3739

On page 25 of the specification, please amend the first two full paragraphs thereon as follows:

A further preferred embodiment of the optical ~~of the~~ fiber core is about 600 um which launches laser light in air at a deflection angle of about 45 degrees with a divergence maximized to be between about 10 to 90 degrees, as represented in figure 3. The divergence may be asymmetric. This would permit optimum visualization for a fiber and endoscope combination while getting the treatment spot optimized as well.

A further embodiment of the optical ~~core~~ fiber core is one at about 600 um which launches laser light in saline at a deflection angle of about 45 degrees with ~~it~~ its divergence maximized to be about 20 degrees, as represented in figure 9. A divergence member 80, is shown in figure 8, characterized as a rotating reflective member such as for example, a multi-mirror sphere, for deflection of a laser beam 82 from a laser light bearing optic cable 84 would be desired, if such a rotatable deflective member 80 could be arranged at the end of an endoscope 36.

Serial No.: 10/728,258 Amendment to SPECIFICATION
Art Unit: 3739

On page 26 of the specification, please amend the bottom full paragraph thereon as follows:

A further embodiment of this occlusion treatment is shown in figure 13, wherein a microcatheter 112 is shown extending from a lumen 114 in the endoscope 100, which microcatheter 112 has a deflated balloon 116 on its distalmost end. Figure 14 represents the balloon 116 being inflated through its microcatheter 112, and being disposed in the neck of the esophagus to occlude it, preventing reflux or stomach inflation. An optical fiber 118 is shown extending from a further lumen 120 in the endoscope 100 to lase and treat a lesion "L" on the esophagus wall "W".

Serial No.: 10/728,258 Amendment to SPECIFICATION
Art Unit: 3739

On page 27 of the specification, please amend the first full paragraph thereon as follows:

Figure ~~16~~ 15 discloses a still further embodiment of an esophageal occlusion arrangement wherein an endoscope 100 has deposited a bioabsorbable or digestable temporary occlusive material 122 to temporarily lodge in the neck of the lower esophagus 124. The endoscope 100 would then lase any lesion by optical means, not shown for clarity, withdrawing from the esophagus, when through, leaving the temporarily occlusive material 122 to dissolve, be digested or pass through the GI tract in due course. Such occlusive arrangements discussed hereinabove may be arranged to extend from a lumen on a side of the endoscope 100, while permitting the balloon of the earlier embodiments to be arranged on the distal end of that scope 100.